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ABSTRACT

This descriptive study examined the interaction between 25 mentally retarded (MR) adult participants in a physical education setting and 51 physical education majors. The study was designed to identify and analyze the causal attributions of physical education majors concerning MR adults' motor performance, to identify and analyze the causal attributions of MR adults concerning their own motor performance, and to examine the expectancies of both physical education majors and MR adults for future success of MR adults' motor performance. Written questionnaires completed by physical education majors indicated that physical education majors' primary causal categories were unstable, internal, and controllable; and their expectancies appeared to vary according to MR adults' performance. In interviews, MR adults reported the causal categories of effort and intrinsic motive most often; their overall causal dimensions were stable, internal, and uncontrollable; and their expectations were significantly more positive than negative for future success on motor performance. (Author/JDD)

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Causal Attributions

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Causal Attributions of Physical Education Majors
and Mentally Retarded Adults

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Abstract

Research has indicated a link between causal attributions and expectancies. This exploratory study examined the causal attributions and expectancies of physical education majors (N =51) and mentally retarded (MR) adults (N =25). Physical education majors completed a written questionnaire concerning their causal attributions and expectancies for motor performance of the MR adults. Mentally retarded adults responded through an interview procedure regarding causal attributions and expectancies for their own motor performance. Results indicated that physical education majors' primary causal categories were unstable, internal, and controllable; and their expectancies appeared to vary according to MR adults' performance. Mentally retarded adults reported the causal categories of effort and intrinsic motive most often; their overall causal dimensions were stable, internal, and uncontrollable; and their expectations were significantly more positive than negative for future success on motor performance.

Causal Attributions of Physical Education Majors and
Mentally Retarded Adults

Critical to the identification of appropriate strategies for working with special populations is development of a deeper understanding of the interaction between the significant other (teacher, coach, etc.) and the participant. The experience of the participant in an achievement situation is affected by several major factors, one of which is the reaction of the significant other to the outcome. The significant other's reaction is based largely on how he/she perceives and explains the participant's behavior. These explanations have been termed causal attributions and have been described as factors which determine the type of feedback that is given to the participant and influence the significant other's expectancies for the participant's level of future success (Lewko, 1978). If causal attributions are such powerful behavior modifiers, it seems not only appropriate, but obligatory that physical educators explore this dyadic interplay. Using research based on the theory of attribution as a point of departure, the present descriptive study examined this interaction in a physical education setting involving physical education majors and mentally retarded adults.

Of greatest import to the present study is the link between the dimension of stability and expectancies. Investigations which have provided convincing evidence that the dimension of stability is directly connected to expectancy include McMahan (1973), Weiner (1976), and Weiner, Hackhausen, Meyers, and Cook (1972). The dimension of stability involves either fixed (stable) attributions such as ability and task difficulty or variable (unstable) factors such as effort and luck. If a significant other attributes poor performance to low ability or to difficulty of task, expectancy of future success for that or similar activities would be considered stable. Conversely, if poor performance is attributed to luck or effort, expectancy of future success would be considered unstable (subject to change). In a situation involving physical activities and handicapped populations in which the handicapped person has performed poorly, the significant other may attribute the performance to lack of ability. In accordance with the Weiner paradigm, the significant other develops low expectancy for this person's future performance. If this attribution of low ability was communicated to the handicapped person, it would then most likely become part of that person's own attribution of the outcome (Gergen, 1971).

Research concerning the consequences of causal attributions can be found in the literatures which focus on the self-fulfilling prophecy and teacher expectancy research. These literatures underscore the significance of a handicapped person's transference of others' attributions to him/herself. Merton's (1946) notions concerning the self-fulfilling prophecy and the studies precipitated by it demonstrate the importance of the relationship of a person's expectations of his/her subsequent behavior and the behavior of those with whom they interact.

Despite conceptual and methodological problems, the teacher expectancy literature provides support to the viability of this theory. Following the seminal study of Rosenthal and Jacobson (1968), three studies have been conducted which contribute further understanding into the expectancy phenomenon in interpersonal interactions (Brophy & Good, 1970; Meichbaum, Bowers, & Ross, 1969; Seaver, 1973). These studies demonstrate that expectancies can have a powerful influence on the way teachers interact with students. As Lewko (1978) has noted, if teacher expectancies influence school-related activities so strongly, the potential for a similar effect in movement-related contexts should be examined.

Although a current search of the literature revealed no attribution studies involving mentally retarded (MR) populations in

a physical education setting, several investigations involving MR individuals in other achievement-related situations have generated both compelling questions and valuable insights concerning issues most central to the present study. The following studies, designed to explore the link between causal attributions, feedback, and expectations present a network of findings which underwrite the rationale for this study.

With respect to MR children, several investigations provide relevant information. In an attempt to identify the type of feedback given to MR children and the concomitant causal attribution made by significant others, Raber and Weisz (1981) investigated teacher feedback conveyed during reading class to both MR and nonretarded children. The investigators found that MR children received a significantly greater amount of negative feedback than nonretarded, but were unable to define the relationship between negative feedback and accompanying causal attributions. Causal attributional patterns reported by teachers were described as unclear. Possible effects of high frequency of negative feedback on MR children which were discussed included interpretation of negative feedback as indicative of inadequate ability.

Aloia, Maxwell, and Aloia (1981) and Aloia and MacMillan (1983) investigated initial expectations of teachers for MR children. Results of these studies indicated that the label of "educable mentally retarded" significantly suppressed teacher expectancies on such variables as academic ability, teacher's ability to work with students, and general impressions. Although these studies emphasized the potential of the label "MR" to influence initial expectancies, they did not examine whether the expectancies were maintained. Brophy (1982) has noted that manifestation of the self-fulfilling prophecy requires constancy of expectancies. Before a student internalizes teacher expectancies, the teacher must maintain her/his expectancies over time. No studies were found which examined the constancy of expectancies of an extended time.

In regard to MR adults, frequent inconsistencies are found in the data. Contradictions concerning the effects of success and failure feedback (Guarnaccia & Slis, 1977; Kessler, 1970; Zigler, 1966) have been clarified partially by the examination of causal attributions which accompany the feedback. In an effort to resolve inconsistencies concerning the effects of differential feedback, Hoffman and Weiner (1978) controlled feedback and coupled the feedback with one of three causal attributions. These

investigators found that success feedback increased performance when matched with causal attributions of ability. Hoffman and Weiner concluded that the effects of success and failure feedback depended upon the type of causal attributions used for the outcome. Further evidence of the significance of causal attributions in determining the effects of feedback was revealed by the results of Zoellar, Mahoney, and Weiner (1983). Mentally retarded adults, trained to attribute success to effort or ability and failure to lack of effort, improved assembly task performance. These studies were not designed to sample causal attributions made by MR adults before training. Research attempting to examine the types of causal attributions made by MR adults presents contrasting data. Although Cromwell (1963) reported that MR adults attributed failure to lack of ability, Horai and Guarnaccia (1975) found that MR individuals presented attributional patterns similar to those of nonretarded adults, e.g., failure attributed to lack of effort or bad luck more than success to effort and good luck; success to ability more than failure to ability. Additional research is warranted to clarify MR adults' attributional patterns. Discovery of whether mentally retarded individuals interpret failure as lack of effort or lack of ability is imperative in determining if

programming is needed which attempts to change failure experiences into a positive influence on performance.

Finally, the literature contains conflicting findings concerning the expectancies of MR adults for their own future success. In contrast to Cromwell (1963) who found low expectancies of a group of MR adults upon entering an achievement related environment, Guarnaccia and Slis (1977) demonstrated that MR adults entered achievement situations with success orientation. Importance of elucidation of this puzzling discrepancy is highlighted by the potential negative effect of low expectancies for success on future performance as described in the self-fulfilling prophecy literature and supported by the teacher-expectancy research.

In summary, there is considerable support in causal attribution and expectancy literatures for the hypotheses that: The effects of feedback on performance is greatly influenced by the concomitant attribution; and that expectancies for future success are potentially likewise influenced by causal attributions. In an effort to clarify inconsistencies found in the literature concerning MR adults and to establish a foundation for further examination of the role that causal attributions play in molding behavior in a physical education setting, the following exploratory

study was designed. Specifically, the purpose of this descriptive study was three-fold: (a) to identify and analyze the causal attributions of physical education majors concerning MR adults' motor performance, (b) to identify and analyze the causal attributions of MR adults concerning their own motor performance, and (c) to examine the expectancies of both physical education majors and MR adults for future success of MR adults' motor performance.

Methods

Subjects

Undergraduate physical education majors ($N = 51$) and mentally retarded adults ($N = 25$) served as subjects for this study. Physical education majors, ages 19 to 23 years, were enrolled in an adapted physical education course which included an 8-week practicum experience of programming for MR adults. These subjects had no prior experience working with MR adults in an achievement-related setting. Only seven of these subjects had participated in one to two Special Olympic meets with MR children.

Of the MR adults, 11 were mildly MR and 15 were moderately MR, with a group mean IQ of 54.42, and an age range of 21 to 52 years. All MR adults were clients from the Developmental Services of Northwest Kansas (DSNWK), an agency providing both residential

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facilities and group home living arrangements. These subjects were employed in either a sheltered workshop or in the community. Criteria for selection of subjects from the total population affiliated with DSNWK included: (a) no gross physical impairment, (b) no uncorrected visual or auditory impairment, and (c) a level of verbal communication which allowed for a successful interview. A speech therapist and other professionals from DSNWK consulted with investigators to insure that verbal skills were commensurate with the requirements for the interview.

Instruments

A data gathering instrument and an interview procedure were developed by the investigators based on examples and critiques of examples in the literature (Elig & Freize, 1979). The instrument developed for physical education majors, Questionnaire for Determining Causal Attributions and Expectancies, was pilot tested and found effective in gathering both open-ended responses concerning causal attributions and scaled responses regarding expectancies for future success. The open-ended question format (i.e., Why did [name] perform [well or poorly] on [name of task]) was selected to encourage a broad range of responses which would not be biased toward use of the four traditional factors: ability,

effort, task difficulty, or luck. This system appeared to be the most appropriate framework for expanding the study of causal attributions to this new settings. Regardless of problems in content analysis for free responses, "the advantage of such an approach, especially in early exploratory studies with any population outweighs the disadvantage", (Elig & Freize, 1975, p.5). Immediately following an open-ended question, subjects were asked to rate their expectancies for MR adults' future success on motor tasks, using a 7-point rating scale.

Mentally retarded adults were presented also with open-ended questions through an interview procedure conducted by one of three trained interviewers. This procedure had been pilot tested previously with MR adults demonstrating comparable IQ scores and found effective. The interview protocol consisted of asking the MR subjects to verbally express reasons for high or low performance and to verbally respond with either "yes" or "no" to a question concerning their expectancies for future success of their performance.

Collection of Data

Data collection was preceded by two necessary steps. First, physical education majors were paired randomly with MR

adults. All subjects participated in motor activities with their assigned partner throughout the subsequent 8-week practicum period. Second, physical education majors administered the following four motor test items to the MR adults: (a) throwing for accuracy, (b) kicking for accuracy, (c) 300 yard run, and (d) number of sit-ups in 30 seconds. Criterion for high/low cut off scores for limb accuracy items was based on the investigators' previous experience with MR adults of comparable IQ levels. High score was established as 6 points or above out of a possible 9 points. Low scores were considered to be 5 points and under. Criterion for high-low cut off scores for the run and sit-up items was based on scores corresponding to the 80 percentile ranking for age 19 years of the AAHPERD Motor Fitness Testing Manual for the Moderately Mentally Retarded (Johnson & Londeree, 1976). These four tasks were selected because they appeared to be analogs of common adult activities and as such, age appropriate for MR adults.

Data were collected from physical education majors who were enrolled in one of two sections of an Adapted Physical Education course. Of the total 51 physical education majors, 26 of these subjects were enrolled in section A, and 25 in section B. The Questionnaire for Determining Causal Attributions and Expectancies

was completed by all 51 subjects after they had administered the four motor items to the MR adult subjects. Subjects were instructed to write out their reasons for success or failure of MR adults' performance on each task and then to rate their expectancies for future success of MR adults for each task. Physical education majors were told that these answers would be used to improve motor programming for MR adults in the future. Administration of the motor items and data collection of the causal attributions and expectancies were completed in the week prior to the 8-week practicum period. Expectancy levels were again rated by the physical education majors following the practicum period. Expectancy level data were collected both at the initial and final week of the practicum to examine the constancy of the expectancies.

Data were collected from only the MR adults who participated in the practicum included in section B. Immediately after completion of each motor task, MR adults responded verbally to questions posed by one of the three trained interviewers. Interviewers were instructed to attend carefully to subject comprehension without providing cues to elicit specific responses. Interviewers recorded verbatim their reasons for the outcome and

then presented the question concerning expectancies for future success on that particular motor task.

Analysis of Data

Analysis of all open-ended responses was based on a coding system developed by Elig and Freize (1975), A Multidimensional Scheme for Coding and Interpreting Perceived Causality for Success and Failure Events: The Coding Scheme of Perceived Causality (CSPC). The CSPC was designed for the purpose of analyzing open-ended responses when subjects were asked to state reasons for outcomes in achievement-related and social situations. Since the categories of causal attributions have varied from population to population and setting to setting, Elig and Freize (1979) recommended that analysis of free responses be implemented when investigators examine new populations or new settings to establish a set of valid causal categories. After determining categories through content analysis of free responses, the categories can then be employed in a rating scale format for future research.

Appropriate use of the CSPC requires thorough knowledge of the content. Based on the theoretical work of Weiner and practical applications, this coding system defines and discusses 19 causal categories, each of which is illustrated by typical responses.

Responses were coded for category and for dimensions according to the instructions in the CSPC as closely as possible except for coding of the dimension of controllability. Later refinement of this dimension as discussed by Weiner (1979) were incorporated. Research based on the CSPC has indicated that high intercoder reliability ranging from .78 to .94 has been obtained (Elig & Freize, 1975). The two investigators and one independent coder analyzed all open-ended responses for the present study. Reliability based on percentage of agreement yielded 93% for coding of 25 responses randomly drawn from the total responses.

After the coding of open-ended responses, descriptive analysis was completed. Investigators tallied frequency of causal categories and dimensions and computed the corresponding percentages. Expectancy levels for physical education majors from both sections of the adapted physical education classes were combined. Initial and final expectancy levels were correlated for both the two physical fitness item and for the two motor ability items using Pearson product-moment correlation technique. Chi-square analysis was employed to examine expectancies of MR adults.

Results

As presented in Table 1, results indicated that physical education majors perceived motor performances of MR adults as caused most frequently by ability and effort. These two causal categories accounted for 63.8% of all responses reported by physical education majors. As cautioned by Elig and Freize (1975), the categories in the CSPC were not so extensive as to cover all the categories which were identified in this new situation. Causal attributions provided by physical education majors which were cited in previous research and absent from the CSPC, included "comprehension of task or questions".

Insert Table 1 about here

Table 1 about here

Also shown in Table 1 are self-attributions of MR adults. Effort and intrinsic motive, which accounted for 58.2% of their total responses were the two most common responses. "Other situation help/hurt" accounted for 12.7% of the responses. Unique to the MR adults was a response which was labeled "internal criteria". Internal criteria for success was not considered an attribution, but rather a response that revealed rejection of the objective outcome, e.g., an interviewer told a MR adult that she/he

scored poorly on the sit-up test and the performer responded by denying the poor performance and insisting she/he had done well on the sit-up item.

Insert Table 2 about here

Table 2 presents a dimensional summary of causal attributions for physical education majors and MR adults. Although the stability dimension was the primary dimensional focus for this study, to establish a more comprehensive foundation for future investigations, the dimensions of causality and controllability were included also in the analysis. Physical education majors stated perceived causal attributions that were most often unstable (77.4%), internal (93.7%), and controllable (64.3%). Results indicated that MR adults stated self-attributions that were primarily stable (61.8%), internal (74.5%), and uncontrollable (52.7%).

Expectancies of both groups were analyzed by separate procedures. To examine the stability of physical education majors' expectancies, initial and final expectancy levels were correlated using Pearson product-moment correlational technique.

Insert Table 3 about here

Table 3 presents results of the correlational analysis of the physical fitness items and the motor ability items. Correlational analysis yielded low results, $r = .23$ to $.34$. Chi square results as seen in Table 4, indicated that MR adults were significantly more positive than negative concerning their expectancies for future success ($X = 72.25$, $p < .01$).

Insert Table 4 about here

Discussion

Results concerning causal categories of physical education majors indicated two important findings. First, results indicating the prevalence of ability and effort parallel findings in other achievement situations. In discussing the most commonly cited causal attributions used in an achievement situation, Weiner has described ability and effort as the most salient and frequently used causal attributions. "Outcomes frequently depend upon what we can do and how hard we try to do it" (Weiner, 1979; p.5). Second, the new causal category offered by physical education majors, lack of comprehension of task or question, resulted in an ambiguous interpretation. Discussion concerning whether this attribution was engendered as a by-product of the effects of

labeling which have been demonstrated to influence attitudes and expectations (Aloia, Maxwell, & Aloia, 1981; Kurtz, Harrison, Neisworth, & Jones, 1977; Severance & Gasstrom, 1977) or whether this attribution was an objective, accurate assessment is speculative.

Dimensional analysis of the physical education majors revealed an unstable, internal, and controllable overall pattern. Implications for the influence of these causal dimensions appear positive. Most importantly, the notion that the label "mentally retarded" can predispose people to attribute failure to stable, uncontrollable factors such as low ability was not demonstrated in this study.

Dimensional analysis of the most frequent category, ability, as reported by physical education majors presented an interesting consideration in respect to both stability and controllability. Although traditionally classified as stable, the present dimensional classification yielded an unstable nature. Others have suggested that the traditional concept of ability may not be operative in sport or physical activity situations (Rejeski & Brawley, 1983; Ryan, 1981). We concur and emphasize that these results indicated that "unstable" ability incorporated a

controllable character, controllable through practice (stable effort). The belief that certain activities require a special "talent" which is considered innate may produce the stable nature of ability. If we believe that expertise in statistics and dance requires an innate gift, ability in these areas will be perceived as stable. If technique and accuracy of throwing is considered to be easily improved by practice (stable effort), the disposition of ability would be considered unstable. Therefore, the chameleon nature may stem from beliefs concerning the degree that practice can modify ability level.

In regard to MR adults, results revealed that the causal categories of effort and intrinsic motive were the most frequently reported. Effort has been differentiated into two categories, the more common of which is considered unstable. Effort responses in this study denoted the other category, stable effort, described as continued practice or lack of practice. Although the MR adults' responses described the less common type of effort, the results support earlier findings which indicate that effort is one of the most salient causal categories used in an achievement-related situation. Discussion concerning intrinsic motive must address the question of whether

this was a reflection of external influence on what is perceived as intrinsic motive (in other words, "I like what I do well", or the converse) or, whether this could be interpreted as convincing evidence of the powerful influence of intrinsic motive on outcome. If the latter is more accurate and intrinsic motives are enormously effective mediators of behavior, (hence motor performance outcome) one must consider the consequences of offering extrinsic rewards for completion of intrinsically motivated activities. It has been reported that under certain conditions (Deci, 1971; Ross, 1976) rewards have reduced the interest in an activity that was previously performed for its own sake.

Mentally retarded adults reported one new and unexpected response to failure outcome which was labeled by the investigators as internal criteria. In these cases, the responses indicated that the objective outcomes were not synonymous with the participants' perception of success. In reply to the question, "Why did you do poorly on this task", the participant answered, "I did good" or "I did win." Initially this response was thought to be similar to the results of other investigators (Spink & Roberts, 1980) who found that participants who were aware of their relative skill

in the activity and thought that they had demonstrated their true ability level, perceived themselves as successful regardless of objective outcome. Perhaps Weiner's statement concerning ability and effort could be restated as "outcome often depends on what we think we can do, and how hard we think we try". After a closer examination of this response, it seems tenable to propose that these responses may have been vestiges of participation in success-only programs. Overwhelmed by the need to provide nourishment to the self-concept of MR populations, many educators have offered only positive feedback irrespective of the actual outcome. Certainly, extended participation in success-only programs could diminish willingness to accept contrary feedback.

Dimensional analysis of the MR adults' responses yielded a stable, internal, and uncontrollable pattern. This dimensional pattern was similar to that of winners in the sports literature on both the stability and causality dimension (Gill, Ruder, & Gross, 1982; Iso-Ahola, 1979; Mark, Mutrie, Brooks, & Harris, 1984; Miller & Ross, 1975) but not for the dimension of controllability (McAuley & Gross, 1983). Although stable attributions are associated with winners, stable attributions for failure situations which result in the stable factor, ability, have been linked with

low expectancies for future success (Lewko, 1978). In examining the stable responses for failure, only one stable attribution was classified as ability. Therefore, tendency for MR populations to attribute failure to stable ability was not supported.

The greater degree of uncontrollable responses may be examined in the light of previous speculation concerning MR populations. It has been suggested (Seligman, 1975) and evidenced by research (Weisz, 1981) that MR persons exhibit greater propensity for learned helplessness of which a key element is lack of perceived control. While these results appear to support this theorizing, it is important to note a confounding factor. The slightly greater degree of uncontrollability may stem from a problem which appears inherent in the classification scheme (Weiner, 1979). Specifically, the greater uncontrollability may have been generated by the absence of external responses which were controllable e.g., skill in teaching/coaching is controllable from the perspective of the teacher/coach, but not from the point of view of the participant.

In respect to expectations, correlational results indicated that physical education majors' expectancies changed as MR adults' performance changed. If a basic principle of the self-fulfilling prophecy is that expectancies remain constant, the viability of

this theory was not supported. Results concerning the positive expectancies of MR adults were in concert with the findings of Guarnaccia and Slis (1977). The results do not indicate that experiences of negative feedback and failure diminished their expectancies for future success on these motor tasks.

In sum, the results do not support the theory that people often make stable attributions concerning low performance of MR populations nor the notion of the self-fulfilling prophecy in this setting. Perhaps more importantly the results revealed the need to clarify the currently obscure relationship between intrinsic motive and external rewards and also the need to expand our understanding of the potential of beliefs concerning the degree that effort can modify ability in a movement setting.

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Table 1

Frequency and Percentages of Causal Attributions For Both Groups

Causal Attributions	Physical Education Majors		Mentally Retarded Adults	
	f	%	f	%
Ability	238	39.8	5	9.1
Effort	144	24.0	21	38.2
Body Type	30	5.0	1	1.8
Personality	19	3.2	-	-
Intrinsic Motive	53	8.8	11	20.0
Task Difficulty	18	3.0	4	7.3
Mood, Fatigue	24	4.0	3	5.5
Comprehension	43	7.2	-	-
Luck	5	.8	2	3.6
Other Situation Help/Hurt	14	2.3	7	12.7
Ability/Task Interaction	11	1.8	1	1.8
Total Codable Responses	599		55	

Table 2

Dimensional Analysis of Both Groups by Frequency and Percentages

Dimension	Physical Education Majors		MR Adults	
	f	%	f	%
Stability				
Stable	133	22.6%	34	63%
Unstable	455	77.4%	20	37%
Causality				
Internal	551	93.7%	41	75.9%
External	37	6.3%	13	24.1%
Controllability				
Controllable	378	64.3%	25	46.3%
Uncontrollable	210	35.1%	29	53.7%
*Total Responses Included in Dimensional Analysis				
	588		54	

*Investigators were unable to classify 11 responses of physical education major group and 1 response of the mentally retarded adult group.

Table 3

Product-Moment Correlations Between Initial and Final Expectancies

Variables	r
Physical Fitness	.34
Motor Performance	.23

Table 4

Chi Square Analysis of MR Adults' Expectancies

	Yes	No	Total
Observed	93	7	100
*Expected	50	50	100

$\chi^2 = 73.9$; $df = 1$; $p < .01$

*Expected calculated under the null hypothesis of equal proportions for Yes or No, i.e., $P(\text{Yes}) = 1/2$.